ALBERTA GEOLOGICAL SURVEY - COAL GEOLOGY

COAL COMPILATION PROJECT - DONALD FLATS

NTS 83E/16

R. J. H. Richardson, C. W. Langenberg, D. K. Chao and D. Fietz*

ELAD Enterprises Inc.*

Coal Compilation Project
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Coal Geology Section
Alberta Geological Survey

ALBERTA RESEARCH COUNCIL

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Foreword

The prime objective of the three year pilot Coal Compilation Project (CCP), initiated in the 1989/90 fiscal year, is to provide coal resource maps to stimulate and support industry exploration programs, and assist government in matters of resource management. An essential feature of the program is the use of cost effective Geoscience Information System (GSIS) technology that allows the database and various thematic maps to be analyzed, updated, and displayed with complete flexibility at any scale.

Each map set is intended to be a stand alone, unique product contributing to an overall synthesis of information. Maps generated can be at a regional or reconnaissance level. Collection of new data has been limited. Data compiled and evaluated has been based on the following principal sources; Alberta Research Council/Alberta Geological Survey (ARC/AGS); Energy Resources Conservation Board (ERCB); Geological Survey of Canada (GSC/ISPG); and information from the coal industry sector. Industry has cooperated and supported the CCP by providing unpublished corporate reports to the AGS. The availability of these reports has been an essential component toward the success of this project.

The CCP may encompass up to eighteen 1: 50 000 scale mapsheets, to be completed over the three year period. Nine mapsheets have been completed to date, four during the 1989/90 fiscal year and an additional five during the past 1990/91 fiscal year.

Custom maps and database searches can be obtained by contacting the Coal Geology Section, Alberta Geological Survey, Alberta Research Council. Raw coal exploration data[1] that are in the 'public' domain can, for a nominal fee, be viewed in microfiche form at the Records Center of the Energy Resources Conservation Board in Calgary, Alberta. Arrangements can also be made to acquire copies of all/selected data.

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[1] Specifically, the geophysical logs (and other associated data) of coal exploration drillholes and, as available, analytical data relating to coal quality.

Acknowledgments

The project was funded by the Alberta Department of Energy and the Alberta Research Council. The Alberta Geological Survey Coal Technical Advisory Sub-Committee provided valuable guidance for the project. Esso Resources Canada Limited and Union Oil Company of Canada are thanked for making unpublished reports/data available to the Alberta Geological Survey. D. Goulet assisted with map digitization and data entry.

Introduction

Objective

The stated objective of the pilot Coal Compilation Project (CCP), initiated in the 1989/90 fiscal year, was to provide coal resource maps on a 1: 50 000 scale, which would

- o stimulate and support industry exploration programs, and
- o assist government in matters of resource management (eg, Integrated Resource Plans) in areas that may have good coal development potential, but have a lack of data or understanding.

Each map set was intended to be a stand alone, unique product contributing to an overall synthesis of information. Maps generated would be at a regional or reconnaissance level. Collection of new data and/or actual time in the field has been limited. Data compilation and evaluation has been based on the following principal sources

- o Alberta Research Council/Alberta Geological Survey (ARC/AGS)
- o Energy Resources Conservation Board (ERCB)
- o Geological Survey of Canada (GSC/ISPG)
- o cooperation from the coal industry sector.

The CCP may encompass up to eighteen 1: 50 000 scale mapsheets, to be completed over a three year pilot period. Nine mapsheets have been completed to date, four during the 1989/90 fiscal year and an additional five during the past 1990/91 fiscal year. At the end of the three year period, the CCP should be evaluated to determine if the project should be expanded and/or continued. As each map represents a complete product, the Coal Technical Advisory Subcommittee would be able to monitor the progress of the research and react to changing priorities without being committed to spending funds more than one year in advance.

Four contiguous NTS mapsheets[2], located within the Hinton - Grande Cache corridor, were completed during the first fiscal year (1989/90) of the CCP. During the past fiscal year (1990/91), an additional five, but still contiguous, NTS mapsheets were completed in the Grande Cache - Musreau Lake area (see Figure 1). From southeast to northwest (to north), the mapsheets are identified as **83E/16 (Donald Flats)**, 83L/2 (Bolton Creek), 83L/3 (Copton Creek), 83L/7 (Prairie Creek) and 83L/10 (Cutbank River).

For each mapsheet, a product has been generated that includes

- o a coal resource map (scale 1: 50 000)
- o 'snapshot' maps (scale 1: 250 000)
- o supplementary text.

Methodology and Discussion of GIS

Geographic Information Systems (GIS) which encompass spacial data storage, display and analysis by computer have been employed in the municipal, environmental and forestry sectors for many years. The term GIS has been applied to mainly surface or geographic studies and has not as a rule been extended to the 3rd dimension (depth) or temporal aspects (time). A Geoscience Information System (GSIS) goes beyond what is generally thought of as traditional GIS and is focused strongly on subsurface information. An essential feature of the CCP is the use of cost effective GSIS technology that allows the database and various thematic maps to be analyzed, updated, and displayed with complete flexibility at any scale. In addition custom maps can be produced from the various data and graphic elements that have been entered into the information system.

Much of the present methodology, software and hardware used in this study is described in detail in the Alberta Research Council, Open File Report 1989-03A (Richardson et al, 1989). In general both digital and hard copy data or graphic elements are entered into a GIS software product (pcARC/INFO) where they can be analyzed, displayed or plotted to hardcopy.

During the initial year of the CCP, substantial time was spent in

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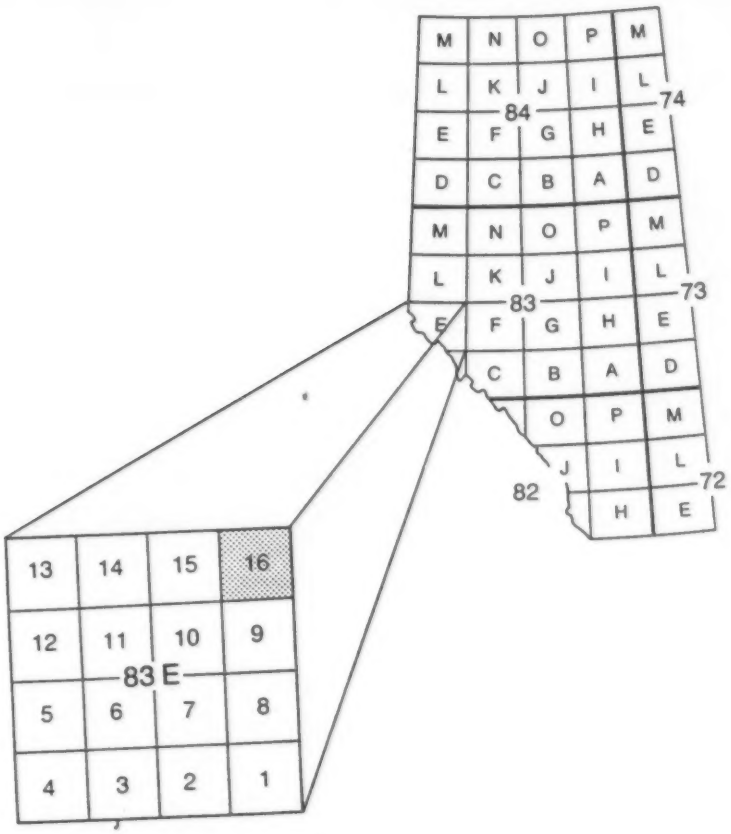
[2]From southeast to northwest, the mapsheets are identified as 83F/5 (Entrance), 83E/9 (Moberly Creek), 83E/15 (Pierre Greys Lakes) and 83E/14 (Grande Cache).

Figure 1. Coal Compilation Project - Donald Flats NTS 83E/16 : Location



- o developing the hardcopy, product template, and
- o replicating the above template into the electronic medium of GIS.

During the past year, much of the original design work was utilized where appropriate. There were numerous, additional design problems, not encountered in the initial year's work, which also had to be resolved. These 'new' design difficulties consumed significantly more time than was initially anticipated. As a net result, expectations of the number of CCP mapsheets generated during the fiscal year fell somewhat short of expectations.

The mapsheets completed to date have each provided their own unique design difficulties, a situation which appears to be more the norm rather than the exception. If, as expected, this pattern continues into the third year of the CCP, the number of mapsheets to be generated should be adjusted downward to reflect, and acknowledge, time spent in resolving these unique design problems.

Location and Access

The study area of mapsheet NTS 83E/16 (Donald Flats) is located in west-central Alberta between Latitudes 53^{o} 45' and 54^{o} 00' North, and Longitudes 118^{o} 00' and 118^{o} 30' West (between Townships 55 and 58 inclusive, and Ranges 1 to 4 inclusive, West of the 6^{th} Meridian).

The communities of Hinton (83F/5) and Grande Cache (83E/14) are the primary population centers near the study area. Hinton is located some 80 road kilometers to the southeast, while Grande Cache is located some 60 road kilometers to the west (to northwest).

Paved access, to and within the area, is provided by Highway 40. Numerous all-weather, gravelled wellsite and logging roads also exist. Additional secondary seasonal access is provided by a network of roads, trails and seismic lines.

The area is serviced by the Canadian National Railway and the Alberta Resources Railway. The rail lines have the capacity to accommodate coal unit trains. The coal terminal at Ridley Island, located at Prince Rupert, B.C., is located approximately 1300 rail-kilometers from Grande Cache; the Neptune Terminals at Vancouver, B.C. are located approximately 1150 rail-kilometers from Grande Cache.

Geological Setting

Within the mapsheet 83E/16, coal measures are deposited within thick successions of sandstones, siltstones, shales and conglomerates.

The coal-bearing Luscar Group, while not present in surface exposures, occurs at depth. While occurrences are limited, additional coal potential is contained within the

- o Upper Cretaceous Brazeau Formation, in the sequence informally defined as the Cutbank coal measure (Dawson, 1989)
- o Paleocene Coalspur Formation, in the sequence informally defined as the Kakwa coal measure (Dawson, 1989).

Stratigraphic nomenclature for the above strata is shown in Figure 2.

Stratigraphy of Coal-Bearing Units

Luscar Group

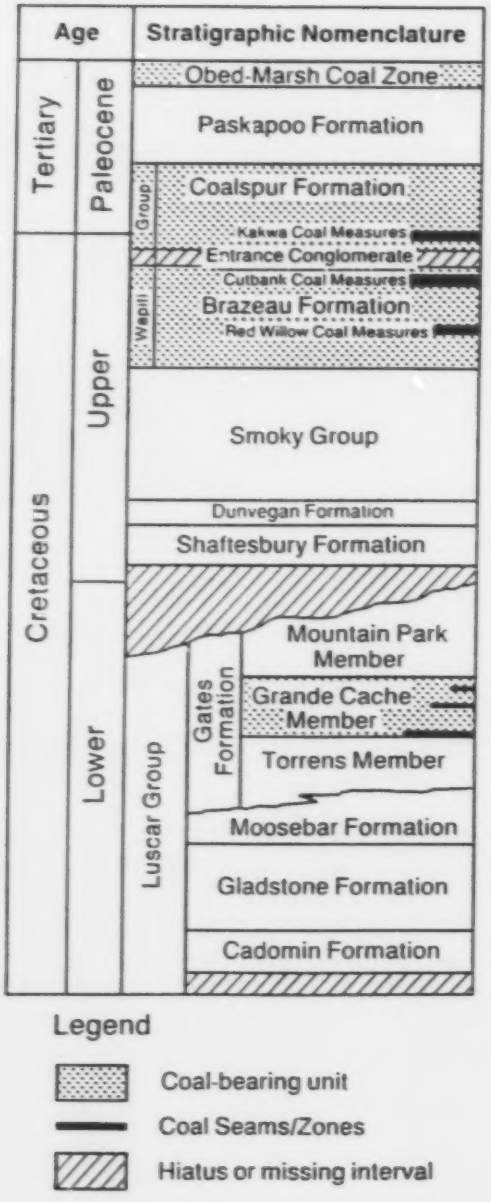
The Luscar Group consists of sandstones, shales, conglomerates and coals that have been deposited predominantly in nonmarine environments. The strata of the Group have been divided into four formations (Langenberg and McMechan, 1985), ie:

- o Cadomin Formation, a basal conglomerate
- o Gladstone Formation, predominantly nonmarine sandstones and shales
- o Moosebar Formation, marine shales and sandstones
- o Gates Formation, nonmarine sandstones, shales and coals.

Gates Formation

The Gates Formation can be divided into three members - the Torrens, Grande Cache and Mountain Park members. The Grande Cache Member contains the economic coal seams within the Luscar Group.

Figure 2. Stratigraphic Nomenclature Adopted for the Coal Compilation Project (after Macdonald et. al. 1989)



Within the mapsheet, coals of the Luscar Group vary in thickness and continuity; coals were identified on geophysical logs from four oil/gas wells; up to 5 coal seams/zones, totalling 15 meters, were identified in a 120 meter thick interval; coals were intersected in the 3350 to 3750 meter depth range.

Brazeau and Coalspur Formations

Within the mapsheet area, the Entrance Conglomerate, which normally separates the Brazeau and Coalspur Formations, has been tentatively identified in only one outcrop[3]. For obvious reasons, it follows that the Brazeau and Coalspur Formations can not be positively differentiated on this mapsheet. Combined, the two formations consist of primarily nonmarine sandstones, conglomerates, shales and (minor...?) coals; the formations lie conformably above the marine Wapiabi Formation.

Within the mapsheet area, 3 coal occurrences are believed to be from the Coalspur Formation (which contain the Coal Valley Coal Zone/Kakwa coal measure). Correlations have not been established for the Coalspur Formation coals. Coal occurrences have been identified

- o in a outcrop, with a recorded coal thickness of 0.9 meters
- o in a coal exploration drillhole; 1.1 meters of coal was intersected at a depth of 380+ meters
- o on geophysical logs from one oil/gas well; 3 coal seams/zones[4], totalling 12 meters,

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[3]The Entrance Conglomerate outcrop, in question, is located in Lsd 5 - Section 28 - Township 55 - Range 3 - W6th Meridian. The orientation of the outcrop has been documented as 320^{o}/26^{o}.

[4]Absolute identification of coals on the oil/gas well logs was somewhat restricted by a number of factors...

- o resolution &/or clarity of available logs
- o 'masking' of coal horizons of the top_hole (ie, logged through surface casing)
- o logged intervals (top and btm of) 'shorted', relative to the full length of drillhole bore.

were identified in a 55 meter thick interval; coals were intersected in the 480 to 530 meter depth range.

There are also a number of coal occurrences believed to be from the Brazeau Formation (which contain the Cutbank coal measure). No correlations have been established for these Brazeau Formation coals. The coal occurrences are highly variable in their thickness and continuity have been identified

- o in 11 outcrops; recorded coal seam/zone thicknesses range from of 0.3 to 4.4 meters
- o on geophysical logs from five oil/gas wells; up to 12 coal seams/zones[5], totalling 8+ meters, were identified in a 250 meter thick interval; coals were intersected in the 700 to 1000 meter depth range.

Structure

The Upper Cretaceous Brazeau Formation and the Paleocene Coalspur Formation are located in a gentle monocline that trends in a northwesterly strike direction. Strata dip gently to the northeast, usually at less than 30 degrees. In general, dips decrease, from southwest to northeast, to near_horizontal. No other major structures were noted from the available outcrop or drillhole data.

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[5]Absolute identification of coals on the oil/gas well logs was somewhat restricted by a number of factors...

- o resolution &/or clarity of available logs
- o 'masking' of coal horizons of the top_hole (ie, logged through surface casing)
- o logged intervals (top and btm of) 'shorted', relative to the full length of drillhole bore.

Environmental Setting

Integrated Resource Plans (IRP's)

Most of the mapsheet 83E/16 is located within the proposed Berland IRP. An additional IRP, designated as 'Yellowhead North', is proposed for the future and is located, in part, in the southern quarter of the mapsheet. A very small part of the Willmore Wilderness Provincial Park, is located in the southwest portion of the mapsheet. A separate IRP, for the Willmore Wilderness Provincial Park area, may also be undertaken at some time in the future.

In the January, 1991 edition of Planning in Progress (Volume 8 Number 1), the status of the Berland IRP was capsuled by the following statement...

'A planning team meeting was held November 16, 1990. At that time, the team discussed Resource Management Area boundaries and themes. As well, a planning area boundary change was approved by the Eastern Slopes Regional Management Committee. The next team meeting is scheduled for January 1991 at which time the team will discuss broad objectives and guidelines. (Team Coordinator: Jamie McNeil)'.

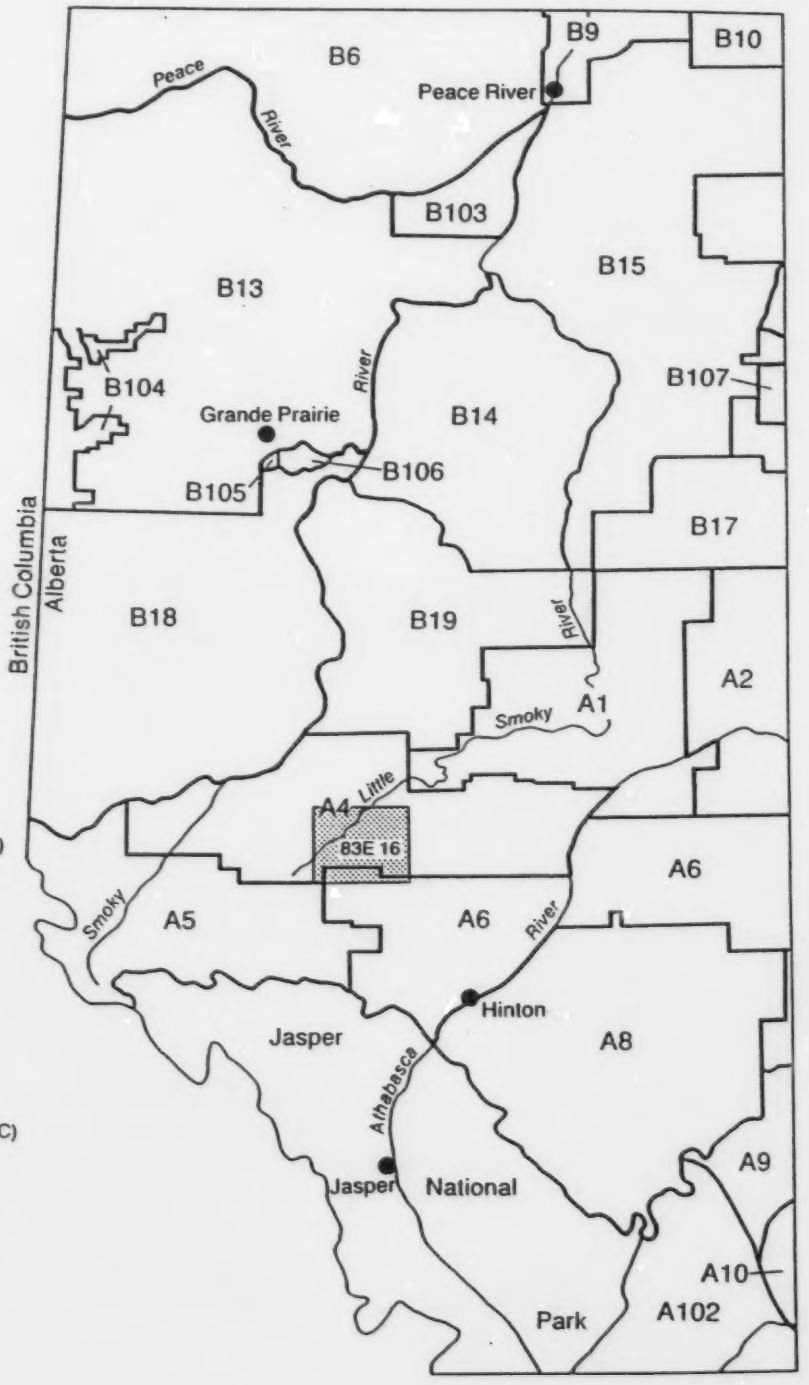
Further, in the March, 1991 edition of Planning in Progress (Volume 8 Number 2), the status of the Berland IRP was updated...

'A Planner's update was sent out in early February regarding the planning area boundary change. As well, a meeting was held on February 12, 1991, and the section of the draft plan dealing with broad objectives and guidelines was finalized. The planning team has now moved on into discussions dealing with the more specific resource management areas. (Team Coordinator: Jamie McNeil)'.

See also Figure 3 for locations/outlines of IRP's in the surrounding vicinity. On Figure 3, a bracketed letter trails the name of the IRP; this letter identifies the status of the IRP as

- o (C); completed
- o (P); in-progress or
- o (F); future.

Figure 3. Locations/Outlines of IRP's in the Surrounding Vicinity (1989)



Sub-Regional Plans

Eastern Slopes Region

- A1 Fox Creek-Knight (P)
- A2 Whitecourt-Blue Ridge (F)
- A3 Swan Hills-Ft. Assiniboine (F)
- A4 Berland (P)
- A5 Willmore Wilderness Park (F)
- A6 Yellowhead North (P)
- A7 Cold Creek (F)
- A8 Coal Branch (P)
- A9 Brazeau-Pembina (C)
- A10 Rocky-North Saskatchewan (C)

Peace River Region

- B6 Notikewin (F)
- B7 Keg River (C)
- B8 Buffalo Head Hills (F)
- B9 East Peace (P)
- B10 Red Earth (F)
- B11 Peerless-Graham (F)
- B12 Wabasca (F)
- B13 Saddle Hills (F)
- B14 Sturgeon Lake-Puskwaskau East (C)
- B15 Heart River (F)
- B16 Utikuma (F)
- B17 North Swan Hills (F)
- B18 Kakwa-Wapiti (F)
- B19 Smoky-Simonette (F)

Local Plans

Peace River Region

- B101 Upper Peace Valley (C)
- B102 Lower Peace Valley (P)
- B103 Smoky-Peace Point (C)
- B104 Grande Prairie County West (P)
- B105 Wapiti-Grande Prairie Sand Dunes (C)
- B106 Bear River-Wapiti (C)
- B107 Frost Hills (C)

Resource Management

Coal Dispositions

The status of the rights_to_coal within an area can generally be categorized into one of the following

- o Crown coal lease
- o Crown coal lease under application
- o Areas with registered right of first refusal
- o Freehold coal rights
- o Coal withdrawn from disposition.

According to a recent (1989-06-30) Alberta Energy Coal Disposition Map, Crows Nest Resources Limited (CNRL), is the only company with 'active/pending' coal land activity. Their coal lease activity is limited to the 'Crown coal lease under application' category.

Established Coal Resources and Reserves

Coal resources and/or reserves are calculated by the ERCB for the whole of Alberta. For the CCP mapsheet 83E/16, there are no coal resources and/or reserves, as calculated by the ERCB (1989).

Exploration History

Coal

Coal Exploration Drillholes

Union Oil Company of Canada Limited has drilled the only two coal exploration holes[6] within the mapsheet area.

Based on the April, 1989 version of the ERCB Coal Hole File, details of the coal exploration drillholes are given in Appendix 1 and includes information on:

- o SITID; the assigned Site Identification Number within the AGS Coal Database
- o CAT_ID; the assigned Catalogue Identification Number within the ERCB Coal Hole File (April, 1989 version)
- o ORIG; the Original Identification Number of the Datapoint (ie, drillhole number)
- o EDITED; within the ERCB Coal Hole File, the equivalent to ORIG has been limited to 6 spaces; this, in some cases, has not been sufficient to record the ORIGinal corporate assigned drillhole number; within the AGS Coal Database, ORIG has been allocated 11 spaces; a 'X' in the EDITED column identifies those drillholes whose ORIG's were truncated; drillholes listed in the ORIG column of the listing have been edited and now reflect the 'true' Original Identification Numbers
- o NCinDH; a 'NC' in the column indicates that there were no coal intersections, for the drillhole, contained within the AGS Coal Database
- o M; Meridian
- o T; Township
- o R; Range

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[6]Information, concerning coal exploration drillholes, is based on the AGS Coal Database, April, 1989 version of the ERCB Coal Hole File. It is planned, in the next fiscal year, to upgrade the AGS Coal Database with the April, 1991 version of the ERCB Coal Hole File.

- o S; Section
- o RSEC; Reference Section
- o RCNR; Reference Corner
- o METN; Meters north or south from the reference corner
- o METE; meters east or west from the reference corner
- o ELEV; Ground or surface elevation of the datapoint (drillhole)
- o TD; Total depth of drillhole reported in meters
- o CORPNUM; the assigned Corporation Number within the AGS Coal Database
- o CPDT; completion date of the datapoint (drillhole); date coded as yymmdd
- o COMPANY; identifies the company that generated the datapoint (drillhole).

Oil and Gas Wells

Within the mapsheet area, 8 oil and gas wells have been drilled. Of the wells drilled,

- o 5 have been abandoned
- o 2 are capped gas wells
- o 1 is a suspended oil well.

See Appendix 2 for additional data. The Appendix is based on queries from the ERCB oil and gas database (April, 1989 version).

There are no designated oil/gas fields within the mapsheet area.

Coal Occurrences

Coal Exploration Drillholes

On both Appendix 1 and the map, coal exploration drillholes have been identified as either

o coal thicker than 0.5m intersected in the drillhole

or

o no coal thicker than 0.5m intersected in the drillhole.

Coal is defined as greater than 50% carbonaceous material by weight and more than 70% carbonaceous material by volume as estimated from geophysical logs. The exclusion of coal seams thinner than 0.5m is consistent with Hughes et al. (1988), who exclude seams thinner than 0.5m in resource determination.

Only one of the coal exploration drillholes intersected coal. Details of the coal intersection has been included in Appendix 3. The listing includes

o SITID; the AGS Coal Database identification number

o CAT_ID; the ERCB catalogue identification number

o ORIG; the original company-assigned drillhole number

o M T R S ; Dominion Land Survey (DLS) information; ie, Meridian, Township, Range and Section

o TOP DEPTH; depth to top of coal in meters

o BOT DEPTH; depth to bottom of coal in meters

o THICK; thickness of the coal seam in meters

o SEAM; the ERCB_Designated Coal Seam Name/Number (if assigned/known); a '0' indicates that the seam has not been correlated

o MIN; Mineral Matter content of the coal (often a best-estimate from geophysical log interpretation); a '0' indicates that the mineral matter of the coal was not available and/or not derived

o REGOLITH; thickness, in meters, of the regolith

o PIKNUM; the geological pick identification number as stored in the AGS Coal Database

o REMARKS.

Coal Outcrops

Numerous coal outcrops and/or coal seam traces have been documented within the mapsheet 83E/16 by Union Oil Company of Canada Limited.

Coal outcrop locations and/or coal seam traces have been identified on the GIS plot. Coal seam outcrops of the

- o Coalspur Formation; the only coal outcrop documented has a recorded thickness of 0.9 meters
- o Brazeau Formation; thicknesses of the 11 recorded coal seam/zones range from 0.3 to 4.4 meters.

Coal Quality Summary

Coal Rank

Within the mapsheet 83E/16, the rank of coal in the Upper Cretaceous Brazeau Formation (and/or Cutbank coal measure) is high volatile bituminous C.

No coal quality information is available for coal of the

- o Paleocene Coalspur Formation (and/or Kakwa coal measure); the rank of the coal is likely high volatile bituminous C
- o Lower Cretaceous Luscar Group; the rank of the coal is probably low to medium volatile bituminous.

Coal Exploration Drillholes

Neither of the two drillholes, within the mapsheet 83E/16, contain raw coal quality information.

The two drillholes, however, were sampled and results, from 2 samples of washed coal, are available. Sample results, expressed in both air-dried and dry basis, include the following coal quality data

- o 2 Proximate Analysis

- o 2 analysis of Sulphur
- o 2 analysis of Heating Value
- o 2 analysis of Equilibrium Moisture (air-dried basis only).

In addition, 24 non-coal samples from the two drillholes were analyzed for palynology.

Coal Outcrops

A number of outcrops, within the mapsheet 83E/16, have been sampled by

- o Esso Canada Resources Limited, between 1982 to 1985; 1 sample, from a non-coal outcrop, was analyzed for palynology
- o Union Oil Company of Canada Limited, 1980; from 3 coal outcrops, sample results include Proximate Analysis, Sulphur, Heating Value and Equilibrium Moisture determinations; samples from the above three outcrops, plus an additional 7 coal outcrop_samples[7], were also analyzed for palynology.

Coal Resource Development Potential

A semiquantitative and subjective evaluation of the potential of coal development in the map area is based on limited data. It is based on mainly geological criteria and does not take into account governmental restrictions on coal development or evaluate actual economic constraints to development now or in the future. The three criteria that have been used are Coal Potential, Mining Potential, and Data Availability (discussed in more detail below). Areas in Green on the companion map (thematic inset 'Coal Development Potential') reflect higher level of knowledge and potential for development of coal than the blue (medium) or red areas (low). Areas rated in blue indicate more information is needed to determine the coal development potential. Areas colored red indicate some potential for development. The remaining uncolored areas have no data available often because the coal, if present, is at depth under non coal-bearing rocks.

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[7]Only locational data is available for the 7 samples.

Coal Potential

Resources

The amount of data is too small for a quantitative evaluation of coal resources.

Coal Quality

Very little coal quality data is available but where test results are present the potential of the coal for development is strengthened. In general where a sample has been collected and analyzed the coal has an inherent development potential.

Mining Potential

Overburden

An evaluation of overburden for surface mining and depth for underground mining has been made. (The 'Mining Potential' criteria did not take into account governmental restrictions on coal development or evaluate actual economic constraints to development now or in the future.)

Geotechnical

Geotechnical considerations included an evaluation of structural setting. Consideration was given to infrastructural concerns related to site, environment and potential mining problems.

Data Availability

Little coal data is available for the entire map area but where present the potential of the coal for development is strengthened. In general, where an outcrop, drillhole, trench or sample is present the coal has an increased development potential. Some value was given to areas containing sediments that typically include coal.

Future Work

In general, from a coal resource/exploration point of view, the map area has been only superficially examined. Additional coal exploration and coal quality data needs to be collected throughout the map area.

The coal-bearing Luscar Group, while not present in surface exposures, occurs at depth. Within the mapsheet, the Luscar Group is intersected, in the subsurface, in the 3350 to 3750 meter_deep range. If depth of burial is not a deterrent, the presence of thicker coals of low to medium volatile bituminous rank (?) could indicate the area has potential for coalbed methane. The entire area on the accompanying map, RCM9, contains Luscar sediments at depth. Additional work is required to establish and evaluate coalbed methane resource potential of the Luscar Group in the area.

The mapsheet contains coals of the Coalspur and the Brazeau formations. These coals should also be considered for their coalbed methane potential. The coals (should) have a rank of high volatile bituminous C. Coalbed methane potential, while (probably) not as high as the Luscar Group coals, should not be excluded.

For most of the map area, little data is available and the coal development potential is somewhat uncertain.

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* Confidential corporate reports on loan to the Alberta Geological Survey.

Appendix 1. 83E/16 - Coal Drillholes

FILE NAME: 83E16.DLS (on the mainframe)

NOTE:
1. 'ORIG' that has been edited ...ie, ERCB Coal Hole File did not present 'true' original drillhole number; ORIG now represents 'true' original drillhole number.
2. No coal in drillhole as per criteria of Hughes, Mudry & Nikols in GSC Paper 88-21, 'A Standardized Coal Resource/Reserve System for Canada'; geology picks have been modified from the AGS Coal Database April, 1989 version of the ERCB Coal Hole File.
3. A 'Y' indicates that coal quality data exists; ref: AGS Coal Database, April, 1989 version of the ERCB Coal Hole File and other misc available sources.

DWF 9007

SITID	CAT-ID	ORIG	EDITED (1)	NCInDH (2)	CQ (3)	M	T	R	S	RSEC	RCNR	METN	METE	ELEV	TD	CPDT	DRLD	CORPNUM	COMPANY
1044131	446807	WST813			Y	6	57	3	5	5	NE	-575.00	-1250.00	1353.00	466.30	811000	850600	96	UNION OIL COMPANY OF CANADA LIMITED
1044232	446815	WST814		NC	Y	6	58	4	2	2	NE	-275.00	-1550.00	1527.00	435.00	811000	850600	96	UNION OIL COMPANY OF CANADA LIMITED

Appendix 2. 83E/16 - Oil and Gas Wells; Status and Formation Tops

Site ID: 146592 Source ID: 00/08-21-055-03W6/0

Latitude: 53.764359 Well Length: 1747.000
Longitude: 118.375987
KB Elevation: 1408.400 Status: Abandoned Well

Well Name: CANHUNTER CABIN CREEK 8-21-55-3

Depth Meters	Depth Feet	Horizon Name	
1410.000	4625.984	WAPIABI FM	WPBI
1467.000	4812.992	CHINOOK MBR	CHNK
1747.000	5731.627	TOTAL DEPTH	TD

Site ID: 89473 Source ID: 00/01-35-056-01W6/0

Latitude: 53.878516 Well Length: 5174.900
Longitude: 118.026476
KB Elevation: 1255.500 Status: Capped Gaswell

Well Name: HB CABIN CREEK 1-35-56-1

Depth Meters	Depth Feet	Horizon Name	
1778.800	5835.958	BELLY RIVER GRP	BR
2197.300	7208.990	WAPIABI FM	WPBI
2408.800	7902.888	BADHEART FM	BADH
2480.500	8138.124	CARDIUM FM	CARD
2532.000	8307.087	CARDIUM SD	CARD SD
2562.100	8405.841	BLACKSTONE FM	BKST
3166.300	10388.124	BASE FISH SCALES ZONE	BFSC
3218.700	10560.039	BLAIRMORE GRP	BL
3486.900	11439.961	GETHING FM	GETH
3613.700	11855.972	CADOMIN FM	CADM
3631.400	11914.042	NIKANASSIN FM	NIKA
3698.700	12134.843	FERNIE GRP	FERN
3769.200	12366.142	NORDEGG MBR	NORD
3787.700	12426.838	TRIASSIC SYSTEM	TRIA SYS
3958.700	12987.861	DEBOLT FM	DBLT
4079.100	13382.875	SHUNDA FM	SHUN
4152.900	13625.000	PEKISKO FM	PEK
4210.800	13814.960	BANFF FM	BNFF
4383.900	14382.874	EXSHAW FM	EX
4385.800	14389.107	WABAMUN GRP	WAB
4605.500	15109.908	GRAMINIA FM	GRAM
4613.100	15134.844	BLUERIDGE MBR	BLUE
4653.400	15267.061	CALMAR FM	CALM
4661.000	15291.995	NISKU FM	NIS
4716.500	15474.082	IRETON FM	IRE
4718.300	15479.986	LEDUC FM	LED
4966.700	16294.948	SWAN HILLS MBR	SW HL
5098.100	16726.051	ELK POINT GRP	ELPT

Site ID: 90875 Source ID: 00/04-13-057-02W6/0

Latitude: 53.921728 Well Length: 3493.300
Longitude: 118.169593
KB Elevation: 1318.900 Status: Capped Gaswell

Well Name: IMP KISKIU 4-13-57-2

Depth Meters	Depth Feet	Horizon Name	
2164.700	7102.034	LEA PARK FM	LP
2321.100	7615.158	COLORADO GRP	COLO
2477.100	8126.969	BADHEART FM	BADH
2553.000	8375.984	CARDIUM FM	CARD
2599.600	8528.872	CARDIUM SD	CARD SD
2784.700	9136.155	SECOND WHITE SPECKLED S	H2WS
3262.900	10705.053	BASE FISH SCALES ZONE	BFSC
3308.000	10853.019	VIKING SANDSTONE	VIK SS
3346.700	10979.987	MANNVILLE GRP	MANN

Site ID: 90876 Source ID: 00/07-28-057-02W6/0

Latitude: 53.953283 Well Length: 3777.000
Longitude: 118.228702
KB Elevation: 1369.100 Status: Capped Gaswell

Well Name: PCP ET AL KISKIU 7-28-57-2

Depth Meters	Depth Feet	Horizon Name	
2173.600	7131.234	LEA PARK FM	LP
2374.200	7789.370	COLORADO GRP	COLO
2488.700	8165.026	BADHEART FM	BADH
2567.000	8421.916	CARDIUM FM	CARD
2604.500	8544.948	CARDIUM SD	CARD SD
3303.000	10836.614	BASE FISH SCALES ZONE	BFSC
3345.600	10976.379	VIKING SANDSTONE	VIK SS
3384.500	11104.003	MANNVILLE GRP	MANN
3643.500	11953.740	GETHING FM	GETH

Site ID: 146639 Source ID: 00/07-06-057-03W6/0

Latitude: 53.894519 Well Length: 2795.000
Longitude: 118.427035
KB Elevation: 1375.400 Status: Abandoned Well

Well Name: CANHUNTER CABIN CREEK 7-6-57-3

Depth Meters	Depth Feet	Horizon Name	
2253.500	7393.373	WAPIABI FM	WPBI
2280.000	7480.315	CHINOOK MBR	CHNK
2593.000	8507.218	BADHEART FM	BADH
2628.500	8623.688	MUSKIKI FM	MSKK
2682.000	8799.213	CARDIUM FM	CARD
2717.000	8914.042	CARDIUM SD	CARD SD
2741.500	8994.423	KASKAPAU FM	KPAU
2795.000	9169.948	TOTAL DEPTH	TD

Site ID: 146640 Source ID: 00/06-21-057-03W6/0

Latitude:	53.937784	Well Length:	685.000
Longitude:	118.388113		
KB Elevation:	1268.100	Status:	Suspended Oilwell

Well Name: CHIEFCO ET AL KISKIU 6-21-57-3

Depth Meters	Depth Feet	Horizon Name	
2196.000	7204.725	WAPIABI FM	WPBI
2228.000	7309.711	CHINOOK MBR	CHNK
2505.000	8218.504	BADHEART FM	BADH
2532.500	8308.728	MUSKIKI FM	MSKK
2582.500	8472.770	CARDIUM FM	CARD
2637.000	8651.575	CARDIUM SD	CARD SD
2661.000	8730.315	KASKAPAU FM	KPAU
2685.000	8809.056	TOTAL DEPTH	TD

Site ID: 90877 Source ID: 00/10-22-057-03W6/0

Latitude: 53.943855 Well Length: 3310.000
Longitude: 118.353861
KB Elevation: 1367.400 Status: Abandoned Well

Well Name: PCP CDN-SUP HOME CABINCK 10-22-57-3

Depth Meters	Depth Feet	Horizon Name	
2356.000	7729.659	WAPIABI FM	WPBI
2561.800	8404.856	BADHEART FM	BADH
2662.000	8733.596	CARDIUM FM	CARD
2706.100	8878.281	CARDIUM SD	CARD SD
2720.200	8924.541	BLACKSTONE FM	BKST
3230.100	10597.441	DUNVEGAN FM	DUNV

Site ID: 92077 Source ID: 00/06-01-058-04W6/0

Latitude: 53.982387 Well Length: 5650.000
Longitude: 118.457403
KB Elevation: 1433.500 Status: Abandoned Well

Well Name: AMOCO CANOXY BOLTON 6-1-58-4

Depth Meters	Depth Feet	Horizon Name	
4390.000	14402.888	DEBOLT FM	DBLT
4525.000	14845.801	SHUNDA FM	SHUN
4650.000	15255.906	PEKISKO FM	PEK
4711.000	15456.037	BANFF FM	BNFF
4885.000	16026.903	WABAMUN GRP	WAB
5095.000	16715.879	GRAMINIA FM	GRAM
5150.000	16896.326	CALMAR FM	CALM
5158.000	16922.572	NISKU FM	NIS

Appendix 3. 83E/16 - Coal Intersections of the Coal Drillholes

CURRENT FILENAME: [COALREG.90]83E16_PX.DAT
ORIGINAL FILENAME: [COALREG.90]P83E16.DAT
MAPSHEET: NTS 83E/16

NOTE: Geology picks have been modified from the AGS Coal Database, April, 1989 version of the ERCB Coal Hole File.
See GSC Paper 88-21 (Hughes, Mudry & Nikols) for the details of criteria.

DWF 9012

SITID	CAT_ID	ORIG	M	T	R	S	TOP_DEPTH	BOT_DEPTH	THICK	SEAM	MIN	REGOLITH	PIKNUM	REMARKS
1044131	446807	WST813	6	57	3	5	381.500	382.600	1.100	0	20	15.000	315149	

ALBERTA GEOLOGICAL SURVEY - COAL GEOLOGY

COAL COMPILATION PROJECT - DONALD FLATS

NTS 83E/16

R.J.H. Richardson, C.W. Langenberg, D.K. Chao and D. Fietz*

Coal Compilation Project
Open File Report 1991-7
Coal Geology Section
Alberta Geological Survey

* ELAD Enterprises Inc.

ALBERTA RESEARCH COUNCIL

MAPS
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OMISES